



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,180	10/30/2003	Girish Upadhy	COOL-00800	9903
28960	7590	06/01/2007		
HAVERSTOCK & OWENS LLP 162 NORTH WOLFE ROAD SUNNYVALE, CA 94086			EXAMINER CIRIC, LJILJANA V	
			ART UNIT 3744	PAPER NUMBER
			MAIL DATE 06/01/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/698,180

Applicant(s)

UPADHYA ET AL.

Examiner

Ljiljana (Lil) V. Cirio

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-109 is/are pending in the application.
- 4a) Of the above claim(s) 76-93 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-75, 94-109 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 20070131 et al.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, readable on claims 1 through 75 and 94 through 109, in the reply filed on January 12, 2007 is acknowledged.
2. Claims 76 through 93 are hereby withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on January 12, 2007.

Drawings

3. The drawings are objected to because they contain unevenly/improperly shaded areas (i.e., elements 101 and 104 in Figure 1A; elements 201 and 204 in Figure 2; elements 302 and 303 in Figure 3A; elements 301 and 302 in Figure 3B). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown

Art Unit: 3744

or the feature(s) canceled from the claim(s), for example: micropillars as recited in claims 13, 17, 60 through 64, and 105 through 109; micropillars comprising a plurality of pins as recited in claims 14 through 16, 61 through 63, 106 through 108; interwoven manifolds as recited claims 31 and 32, 34; and, a plurality of individualized holes as recited in claim 32 and 35. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The abstract of the disclosure is objected to because it does not avoid phrases which can be implied (i.e., "is disclosed") and because it also does not avoid the form and legal phraseology reserved for patent claims (i.e., "is comprised from the group of"). Correction is required. See MPEP § 608.01(b).

Claim Objections

Art Unit: 3744

6. Claims 1 through 75 and 94 through 109 are objected to because of the following informalities: each of base claims 1, 48, and 94 has numbered outline-type indentations corresponding to the limitations in the body of each of these claims. The numbering of these indentations is confusing and should either be removed entirely or be replaced with corresponding letters for improved readability. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1 through 75 and 94 through 109 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

For example, there is no antecedent basis in the claims for the recitation of the following limitations in the claims: “the heat source” [claim 1, line 5; claim 3, lines 2 and 3;]—note that the heat source recited as part of the intended use limitation in the preamble of the claim is not positively recited as an element encompassed by the scope of the claims; “the dimension of the overhang” [claim 4, line 1; claim 51, line 1; claim 96, line 1]; “the spreader region” [claim 95, line 1]; “the micro-scaled region” [claim 95, line 2; claim 96, lines 1-2; claim 97, line 1; claim 101, line 1; claim 105, line 1.

With regard to claim 3 as written, it is not clear whether the limitation “wherein the spreader region and the micro-scaled region are wider than the heat source” is intended to mean that the spreader region in combination with the micro-scaled region are wider than the heat source or to mean that each of the spreader region and the micro-scaled region is wider than the heat source. Claims 50 and 95 each also contain the aforementioned limitation and are similarly rendered indefinite thereby.

Art Unit: 3744

With regard to each of claims 14, 61, and 106, it is not clear whether the limitation “(10 micron)² and (100 micron)²” is correct as written or whether it was intended to be written as “10 (micron)² and 100 (micron)²”.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

10. As best can be understood in view of the indefiniteness of the claims, claims 1, 5, 9, 13, 14, 17, 20 through 23, 25, 29 through 50, 52, 56, 60, 64 through 67, 71, 72, 94, 95, 97, and 109 are rejected under 35 U.S.C. 102(e) as being anticipated by Goodson et al. (2003/0062149 A1, made of record via IDS).

Claim Rejections - 35 USC § 103

Art Unit: 3744

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. As best can be understood in view of the indefiniteness of the claims, claims 2 through 4, 6 through 8, 10 through 12, 15, 16, 18, 19, 24, 26 through 28, 51, 53 through 55, 61 through 63, 68 through 70, 96, and 98 through 108 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodson et al. (2003/0062149 A1, made of record via IDS).

Goodson et al. discloses a device for fluid-cooled micro-scaled heat exchange from a heat source, including a micro-scaled region and a spreader region essentially as claimed, but fails to specifically disclose either the dimension ranges for the various elements as recited in the instant claims or the specific materials of construction for the region as also recited in the instant claims. Nevertheless, absent a disclosure of unexpected results, the various recited dimensions in the instant claims constitute obvious design optimization rather than inventiveness. Official Notice is hereby taken that heat spreaders comprising a variety of materials, including copper, diamond, and silicon carbide are well-known in the art. Thus, it would have been obvious to one skilled in the art at the time of invention to modify the device of Goodson et al. by optimizing the dimensions of the various micro-scaled elements to meet various heat transfer and/or flow and/or manufacturability requirements, and that it would have been equally obvious to make the heat spreader of the device from any number of heat-conducting materials with desirable physical properties, including copper and silicon carbide, for example.

Conclusion

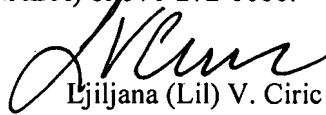
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric whose telephone number is 571-272-4909.

Art Unit: 3744

The examiner works a flexible work schedule but can normally be reached on most days during the work week between the hours of 10:30 a.m. and 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ljiljana (Lil) V. Ciric
Primary Examiner
Art Unit 3744